

## **IN THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A transcritical cooling system comprising:  
a working fluid flow loop;  
a compressor connected to the working fluid flow loop to receive the working  
fluid therefrom and to compress the working fluid to a supercritical pressure for delivery to the  
working fluid flow loop; and  
a brazed plate heat exchanger connected to the working fluid flow loop to receive  
the working fluid therefrom and return the working fluid thereto, the brazed plate heat exchanger  
including a plurality of brazed, stacked plate subassemblies that define high pressure flow paths  
for the working fluid, the brazed plate subassemblies interleaved with a second set of flow paths  
for another fluid to transfer heat between the working fluid and the second fluid;  
~~The transcritical cooling system of claim 18,~~ wherein the brazed plate heat  
exchanger comprises:  
a plurality of plate pairs defining said subassemblies, each plate pair enclosing a  
plurality of flow channels extending from a first inlet opening to a first outlet opening, each of  
the flow channels having a hydraulic diameter less than 1 mm, the plate pairs arranged as a stack  
with the first inlet openings being aligned with each other to define a first inlet manifold for  
distributing the first fluid to the flow channels, and the second openings aligned with each other  
to define a first outlet manifold for collecting the first fluid from the flow channels;  
a plurality of turbulator plates interleaved between the plate pairs to define said  
another set of flow paths for the second fluid, each of the turbulator plates sandwiched between  
the plate pairs to provide structural support thereto; and  
reinforcements extending between each of the plate pairs, aligned with the first  
inlet and outlet openings, and defining the first inlet and outlet manifolds between the plate pairs.
2. (Previously Presented) The transcritical cooling system of claim 1 wherein the  
reinforcements comprise a plurality of washers interleaved between the plate pairs.

3. (Previously Presented) The transcritical cooling system of claim 3 wherein the first inlet and outlet openings are circular openings and each of the washers includes an annular step that is received in a corresponding one of the first inlet and outlet openings.

4. (Previously Presented) The transcritical cooling system of claim 1 further comprising pairs of channeled plates sandwiched between the plates of each of the plate pairs, grooves extending through each of the channeled plates to define the flow channels with the grooves of the other channeled plate of the pair.

5. (Previously Presented) The transcritical cooling system of claim 1 wherein the plates of each of the plate pairs are drawn-cup plates, and one of the plates of each of the plate pairs is dimpled to define the flow channels.

6. (Previously Presented) The transcritical cooling system of claim 1 wherein:  
the first inlet and outlet openings are circular openings; and  
the reinforcements comprise a cylindrical inlet header tube extending through the first inlet openings with an outer surface of the inlet header tube brazed to a surrounding periphery of the inlet openings in each of the plates of each of the plate pairs, and a cylindrical outlet header tube extending through the first outlet openings with an outer surface the outlet header tube brazed to a surrounding periphery of the outlet openings in each of the plates of each of the plate pairs.

7. (Previously Presented) The transcritical cooling system of claim 6 wherein each of the header tubes includes a plurality of slots, each of the slots aligned with the flow channels of a corresponding plate pair.

8. (Previously Presented) The transcritical cooling system of claim 1 wherein each of the plate pairs further includes a pair of sealed openings extending through the plate pair, one of the pair of sealed openings in each of the plate pairs being aligned with the one of the pair of sealed openings in the adjacent plate pairs to define a second inlet manifold to distribute the second fluid to the flow paths for the second fluid, the other of the pair of sealed openings in each of the plate pairs being aligned with the other of the pair of sealed openings in the adjacent plate pairs to define a second outlet manifold to collect the second fluid from the flow paths for the second fluid.

9. (Previously Presented) The transcritical cooling system of claim 1 further comprising:

a top plate defining an upper exterior of the heat exchanger;

a turbulator plate sandwiched between the top plate and an upper-most one of the plate pairs to define flow paths for the second fluid and provide structural support to the plate pairs;

a bottom plate defining a lower exterior of the heat exchanger; and

a turbulator plate sandwiched between the bottom plate and a lower-most one of the plate pairs to define flow paths for the second fluid and provide structural support to the plate pairs.

10. (Previously Presented) The transcritical cooling system of claim 1 wherein each of the turbulator plates is a lanced and offset fin.

11. (Currently Amended) A transcritical cooling system comprising:  
a working fluid flow loop;  
a compressor connected to the working fluid flow loop to receive the working  
fluid therefrom and to compress the working fluid to a supercritical pressure for delivery to the  
working fluid flow loop; and  
a brazed plate heat exchanger connected to the working fluid flow loop to receive  
the working fluid therefrom and return the working fluid thereto, the brazed plate heat exchanger  
including a plurality of brazed, stacked plate subassemblies that define high pressure flow paths  
for the working fluid, the brazed plate subassemblies interleaved with a second set of flow paths  
for another fluid to transfer heat between the working fluid and the second fluid;  
~~The transcritical cooling system of claim 18 wherein:~~  
wherein said subassemblies are a plurality of flat plate subassemblies, each of the  
subassemblies comprising a pair of outer flat plates and a pair of channeled plates sandwiched  
between the outer plates, each of the plates having an inlet opening and an outlet opening spaced  
from the inlet opening, the inlet openings aligned with each other to define a first inlet manifold,  
the outlet openings aligned with each other to define a first outlet manifold, each of the  
channeled plates including a plurality of grooves that cooperate with the grooves of the other  
channeled plate of the pair to define a plurality of flow channels for the first fluid extending  
between the inlet openings to the outlet openings of the pair; and  
wherein said brazed heat exchanger further comprises a plurality of turbulator  
plates interleaved between the subassemblies to define said another set of flow paths for the  
second fluid, the turbulator plates sandwiched between the subassemblies to provide structural  
support thereto; and  
a plurality of washers aligned with the inlet and outlet openings and interleaved  
between the subassemblies to provide structural support thereto, with the washers that are  
aligned with the inlet openings defining the first inlet manifold between the subassemblies, and  
the washers that are aligned with the outlet openings defining the first outlet manifold between  
the subassemblies.

12. (Previously Presented) The transcritical cooling system of claim 11 wherein the inlet and outlet openings in the outer plates are circular openings and each of the washers includes an annular step that is received in a corresponding one of the inlet and outlet openings in the outer plates without extending through the outer plate.

13. (Previously Presented) The transcritical cooling system of claim 11 wherein the grooves in one of the channeled plates of each pair extend longitudinally between the inlet and outlet openings, and the grooves in the other channeled plate of the pair extend transverse to the grooves in the one of the channeled plates.

14. (Previously Presented) The transcritical cooling system of claim 11 wherein each of the subassemblies further includes a pair of sealed openings extending through the subassembly, one of the pair of sealed openings in each of the subassemblies being aligned with the one of the pair of sealed openings in the adjacent subassemblies to define an second inlet manifold to distribute the second fluid to the flow paths for the second fluid, the other of the pair of sealed openings in each of the subassemblies being aligned with the other of the pair of sealed openings in the adjacent subassemblies to define a second outlet manifold to collect the second fluid from the flow paths for the second fluid.

15. (Previously Presented) The transcritical cooling system of claim 14 further comprising a plurality of spacer plates interleaved between the subassemblies, each of the spacer plates sandwiched between an adjacent pair of the subassemblies and surrounding the turbulator plate and the washers sandwiched between the adjacent pair to enclose a flow space for the second fluid.

16. (Previously Presented) The transcritical cooling system of claim 11 further comprising:

a top plate defining an upper exterior of the heat exchanger;

a turbulator plate sandwiched between the top plate and an upper-most one of the plate subassemblies to define flow paths for the second fluid and provide structural support to the subassemblies;

a bottom plate defining a lower exterior of the heat exchanger; and

a turbulator plate sandwiched between the bottom plate and a lower-most one of the subassemblies to define flow paths for the second fluid and provide structural support to the subassemblies.

17. (Previously Presented) The transcritical cooling system of claim 11 wherein each of the turbulator plates is a lanced and offset fin.

18. (Currently Amended) A transcritical cooling system comprising:

a working fluid flow loop;

a compressor connected to the working fluid flow loop to receive the working fluid therefrom and to compress the working fluid to a supercritical pressure for delivery to the working fluid flow loop; and

a brazed plate heat exchanger connected to the working fluid flow loop to receive the working fluid therefrom and return the working fluid thereto, the brazed plate heat exchanger including a plurality of brazed, stacked plate subassemblies, each of the stacked plate subassemblies being spaced apart, defining that define high pressure flow paths for the working fluid, the brazed plate subassemblies and being interleaved with a second set of flow paths between the subassemblies for another fluid to transfer heat between the working fluid and the second fluid.

19. (Original) The transcritical cooling system of claim 18 wherein each of the subassemblies comprise a pair of mating drawn-cup plates.

20. (Original) The transcritical cooling system of claim 18 wherein each of the subassemblies comprises a pair of outer flat plates and a pair of channeled plates sandwiched between the outer flat plates.